DEFENSE CENTERS OF EXCELLENCE
For Psychological Health & Traumatic Brain Injury

Developing Effective Logic Models to Define a Program

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Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE)

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DVBIC Defense and Veterans Brain Injury Center
DHCC

DCoE Mission

Mission: The mission of DCoE is to improve the lives of our nation's service members, families and veterans by advancing excellence in psychological health and traumatic brain injury (TBI) prevention and care.

Source: DVIDSHUB

DCoE Centers

DCoE is comprised of three centers:

- Defense and Veterans Brain Injury Center (DVBIC)
- Deployment Health Clinical Center (DHCC)
- National Center for Telehealth and Technology (T2)

Webinar Details

- This webinar has been pre-recorded, although a live question-and-answer session will be held at the end.
- Questions may be submitted via the Question pod.
- Audio for this presentation will be provided through Adobe Connect; there is no separate dial-in.
- Closed captioning is not available for this event.

Continuing Education Details

- Continuing education credit is not available for this event.
- Webinar materials and information:
  - For information on upcoming webinars or to download materials from previous webinars, visit http://www.dcoe.mil/Training/Monthly_Webinars.aspx
  - Materials for this webinar are available in the Files pod

Presenters

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CAPT Armen Thoumaian, Ph.D.

CAPT Armen Thoumaian is a scientist director in the Commissioned Corps of the U.S. Public Health Service with more than 30 years experience in health and mental health program design and evaluation.

In January 2012, CAPT Thoumaian joined the staff at the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE) to help design and implement program evaluation and improvement efforts in the Defense Department.

He holds a B.A. in Psychology and Sociology, an M.A. in General Experimental Psychology, and a Ph.D. in Social Welfare and Social Work, completing an National Institute of Mental Health fellowship in Community Mental Health.

Presenters

Debra Stark, MBA,
Research Scientist, Contract Support for DCoE

Ms. Debra Stark is a survey methodologist with 15-plus years of research experience. Her work includes program evaluation and monitoring, qualitative data analysis and survey design. She has worked on health services evaluation projects with the National Institute of Allergy and Infectious Diseases, Centers for Medicare and Medicaid Services, Health Resources and Services Administration, Department of Veterans Affairs and TRICARE Management Activity. Ms. Stark received her M.B.A. from Vanderbilt University.

Ms. Debra Stark

Aaron Sawyer, Ph.D.
Research Scientist, Contract Support for DCoE

Dr. Aaron Sawyer is a clinical psychologist with extensive expertise in intervention outcome research and program evaluation. He has delivered child, family and adult interventions for more than a decade, including specialization in trauma and experience working with military families. Dr. Sawyer holds an M.S. in Experimental Psychology and a Ph.D. in Clinical Psychology. He completed post-doctoral training at The Kennedy Krieger Institute/Johns Hopkins University and is a licensed psychologist.

Dr. Aaron Sawyer

Using Logic Models to Define a Program

This webinar will provide a comprehensive overview of the development and use of logic models in program planning and evaluation.

Learning Objectives:

- Explain the major parts of a logic model
- Use suggested guidance to build a logic model
- Identify common challenges that programs face when creating a logic model

Agenda

- Introduction to Logic Models
- Mission, Goals and SMART Objectives
- Inputs, Outputs and Outcomes
- Assumptions and External Factors
- Tips for Creating Logic Models
- Common Challenges
- Conclusion

Introduction to Logic Models

Introduction

"If you don't know where you're going, how are you gonna know when you get there?"

--Yogi Berra

Image Source: *Wikimedia Commons* (http://en.wikipedia.org/wiki/File:Yogi_Berra_1956.png)

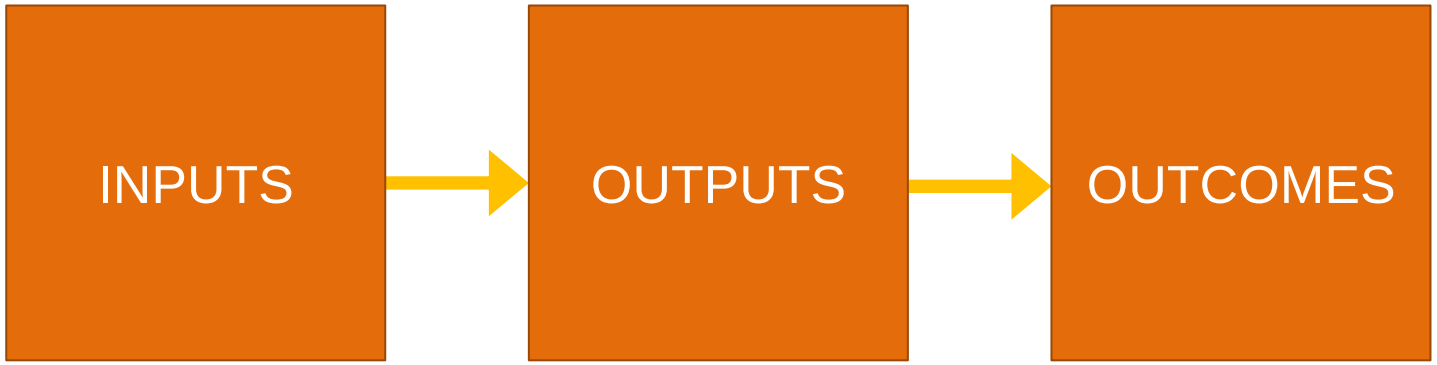
Logic Model Definition

- In simple terms, a logic model is an “action-oriented tool for program planning and evaluation.”

- Logic models connect program outcomes with its practices or products, and also with the theoretical assumptions that underlie the program.

Source: *W.K. Kellogg Foundation, 2004, Logic Model Development Guide*

Basic Logic Model



Basic Logic Model Parts

Inputs – What the program ***needs***

- Includes resources a program requires

Outputs – What the program ***does***

- Includes activities and products of a program

Outcomes – What ***changes*** result from the program

- Includes short-term focused *outcomes* through long-term outcomes and broader *impact*

An Output ≠ An Outcome

Conducting an activity is not the same thing as achieving results from accomplishing that activity.

Outputs
are a program's **activities** and **products**.

Outcomes
are the **changes** in program participants that result from the program.

Why Build a Logic Model?

By building a logic model, program managers make clear to stakeholders and staff how the program works and what to expect from it.

Benefits of Building a Logic Model

Logic models are useful to programs because they:

- Provide a roadmap for progress and results
- Specify how activities should be sequenced
- Identify gaps and redundancies
- Guide program evaluation and improvement (PEI) efforts

Using Logic Models in PEI Efforts

- Program evaluators assess the relationship between stated objectives, inputs, outputs and outcomes to determine whether a program is effective.

- Improvement efforts target specific parts of a logic model to improve quality, outcomes and efficiency.

Using Logic Models in PEI Efforts (continued)

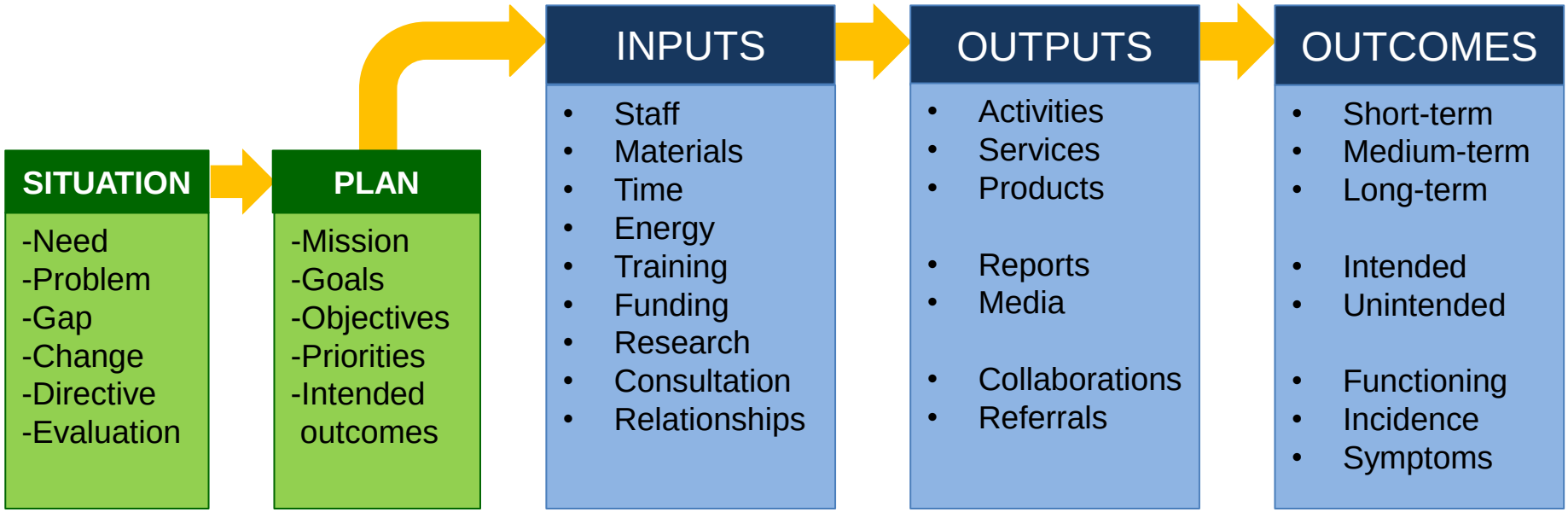
A detailed logic model provides a description of resources, processes and results that programs can use to demonstrate effectiveness and maintain accountability.

"The bane of evaluation is a poorly designed program."

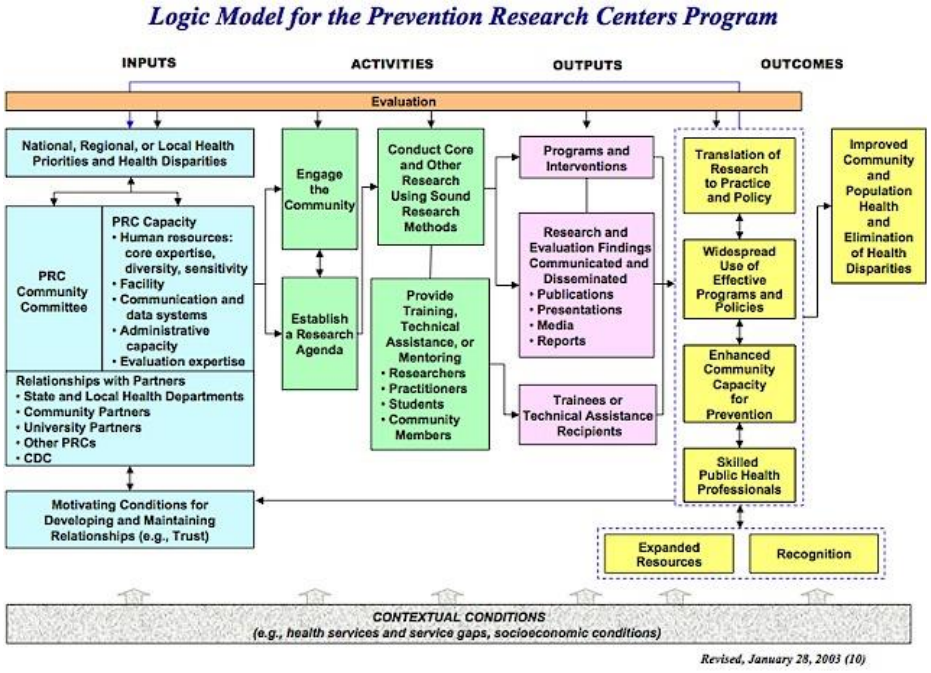
– Ricardo Millet

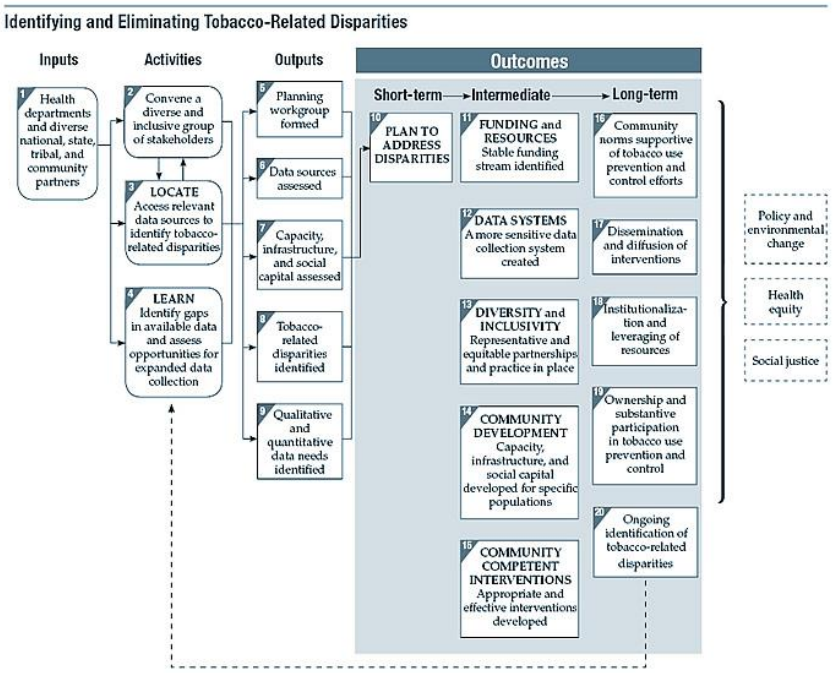
Source: *W.K. Kellogg Foundation, 2004, Logic Model Development Guide*

Detailed Program Logic Model



Examples of Logic Models

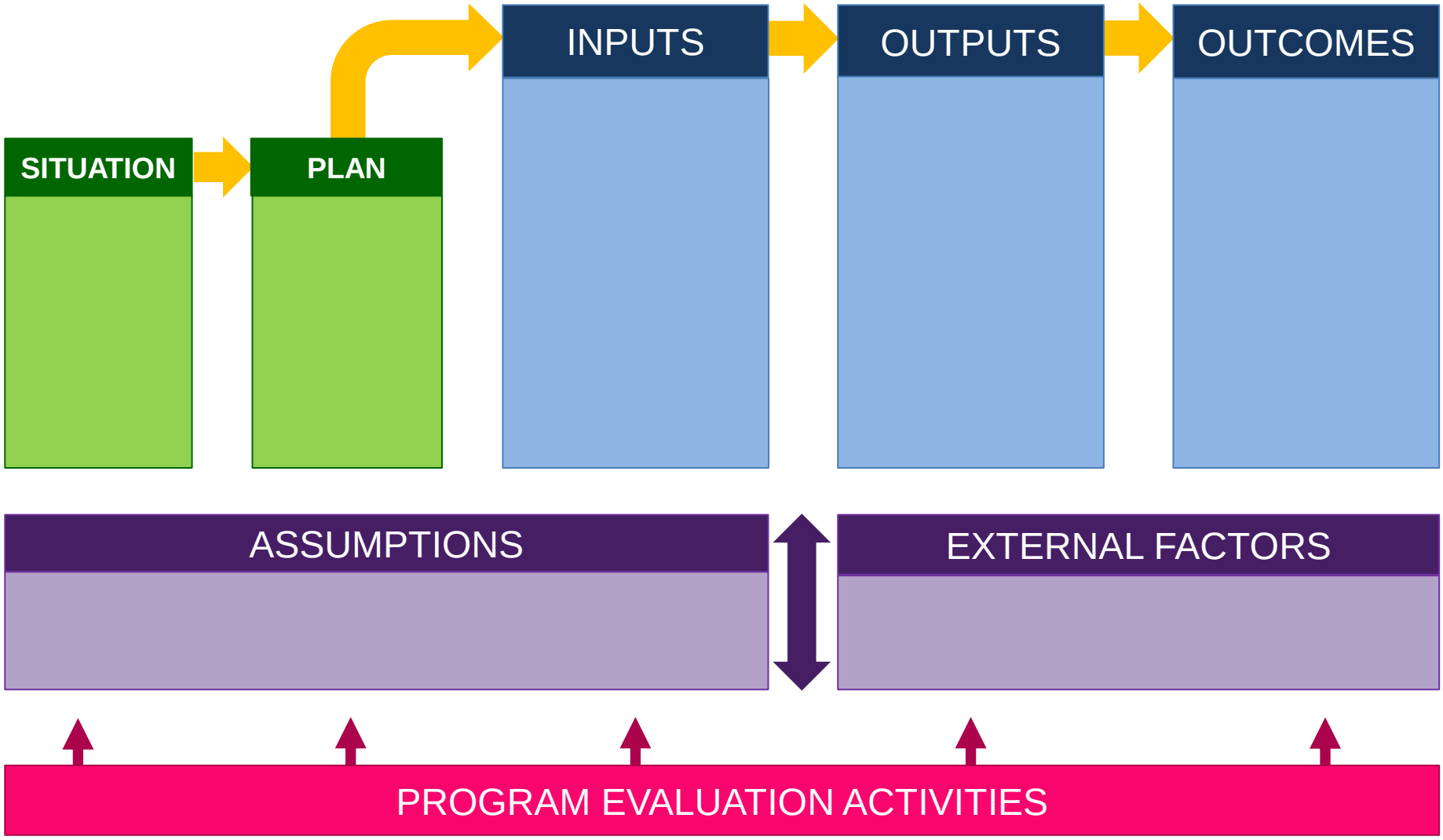




Source: *Centers for Disease Control and Prevention*
Image*: http://www.cdc.gov/prc/pdf/PRC-Logic-Model.pdf*

Source: *NC Department of Health and Human Services*
Image*: http://www.tobaccopreventionandcontrol.ncdhhs.gov/data/disparities.htm*

Logic Models are Customizable to Programs



Definitions of Logic Model Elements

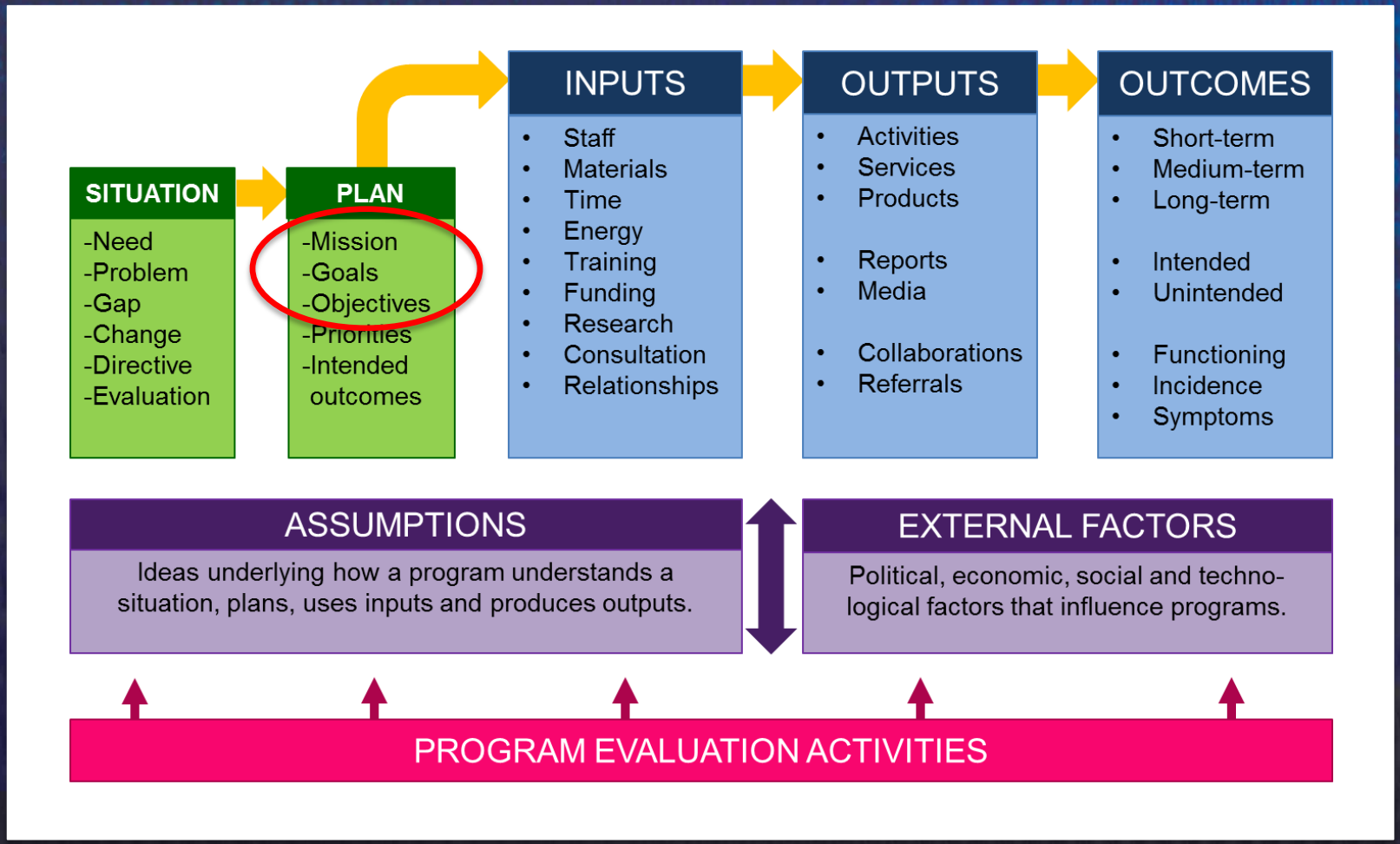
Situation	Context that creates the impetus for a program, including identified needs, problems, or service gaps, a planned change in program operations, a directive or mandate and/or an evaluation.
Plan	The strategies and organizing framework that guide use of inputs, production of outputs, and specify intended outcomes. Plans should include a mission, goals and specific objectives.
Inputs	Resources used to implement a program's activities and produce outputs.
Outputs	The products of a program, including activities* performed by program staff, services provided, products created, reports and documentation, and collaborations with or referrals to other programs or service providers.
Outcomes	The impacts of a program and include short- and medium-term, such as knowledge, skills and individual behavior; to long term, such as social and environmental impacts.

**Note*: In some logic models, activities are listed as a separate element between Inputs and Outputs

Definitions of Logic Model Elements (continued)

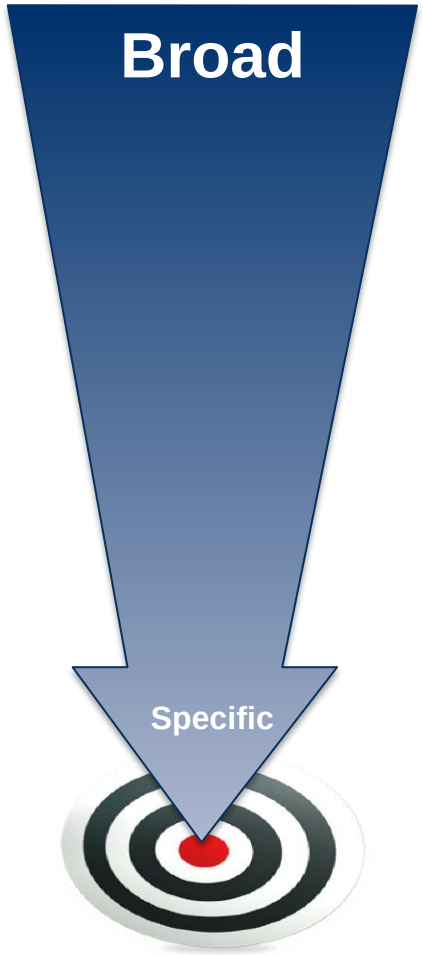
Assumptions	Ideas underlying how a program understands a situation, plans, uses inputs and produces outputs (e.g., that PTSD is best addressed through therapy or that some TBIs can be prevented by wearing helmets).
External Factors	Political, economic, social and technological factors that influence program operations, including aspects of culture and organizations (e.g., stigma in military culture against seeking services, hierarchical command structure, funding limitations and priorities).
Program Evaluation Activities	Individual systematic studies conducted periodically on a regular or ad hoc basis to assess how well a program is working. Program evaluations generally assess the relationships between logic model elements (e.g., whether plans/objectives result in desired outcomes, whether amount of inputs justify resulting outputs and outcomes)

Mission, Goals, and SMART Objectives



Program Planning: Mission, Goals and Objectives

- **Mission** – The purpose for the program's existence; goals and objectives should support this mission.
- **Goals** – Statements that outline what the program intends to accomplish
- **Objectives** – Descriptions of goals in terms of smaller units that can be measured



Mission Statement Examples

Mission should align with organizational priorities.

Promote behavioral health and provide quality, compassionate, patient-centered care while developing healthcare professionals and optimizing readiness.

Behavioral Medicine, Brooke Army Medical Center

To encourage Sailors, commands, families and civilians to empower themselves by taking personal responsibility for their health, wellness and growth—the next step in building resilience.

OPNAV N17 21st Century Sailor communications campaign, NavyTHRIVE

Sample Goal Statements

Goals should be actionable statements about what a program plans to accomplish.

Program A will provide an effective and safe treatment program that comprehensively meets the unique needs of active-duty service members with substance use disorders.

Program B will screen all post-deployment Service members for psychological health concerns and ensure that referrals are made for appropriate care and service coordination.

Objectives Must Be SMART

Goals will often break down into multiple objectives targeting specific elements within the logic model.

Objectives must be

Specific
Measurable
Achievable
Realistic
Time-bound

How to Create SMART Objectives

Is the objective Specific?

- Who will execute or deliver the program?
- Who is the target population?
- Where and how will the program be executed?
- What are the outputs or products?
- What are the intended benefits or outcomes?

Is it Measurable?

- How much change is expected?
- What is the expected direction of change?
- What kind of data will be used to determine whether changes have occurred?
- How will data be collected and from whom or what?
- Are there additional or more accurate sources of data?

How to Create SMART Objectives (continued)

Is the objective Achievable?

- How will the objective be accomplished?
- Are the necessary inputs or resources available to accomplish the objective?
- Is the objective too great, too small or appropriate?
- Can the objective be accomplished in light of external factors?

Is it Relevant?

- Will the objective help the larger organization to meet its mission and goals?
- Does the objective help to address the situation or need that drives the program?
- Does the objective have support from stakeholders, staff and program participants?
- What are the program's priorities? Is this an important objective?

How to Create SMART Objectives (continued)

Is the objective Time-bound?

- When will the objective be achieved?
- Will it be achieved in stages?
- Is the time-frame too short, too long or realistic?
- What deadlines are relevant to achieving the objective?

Sample SMART Objectives

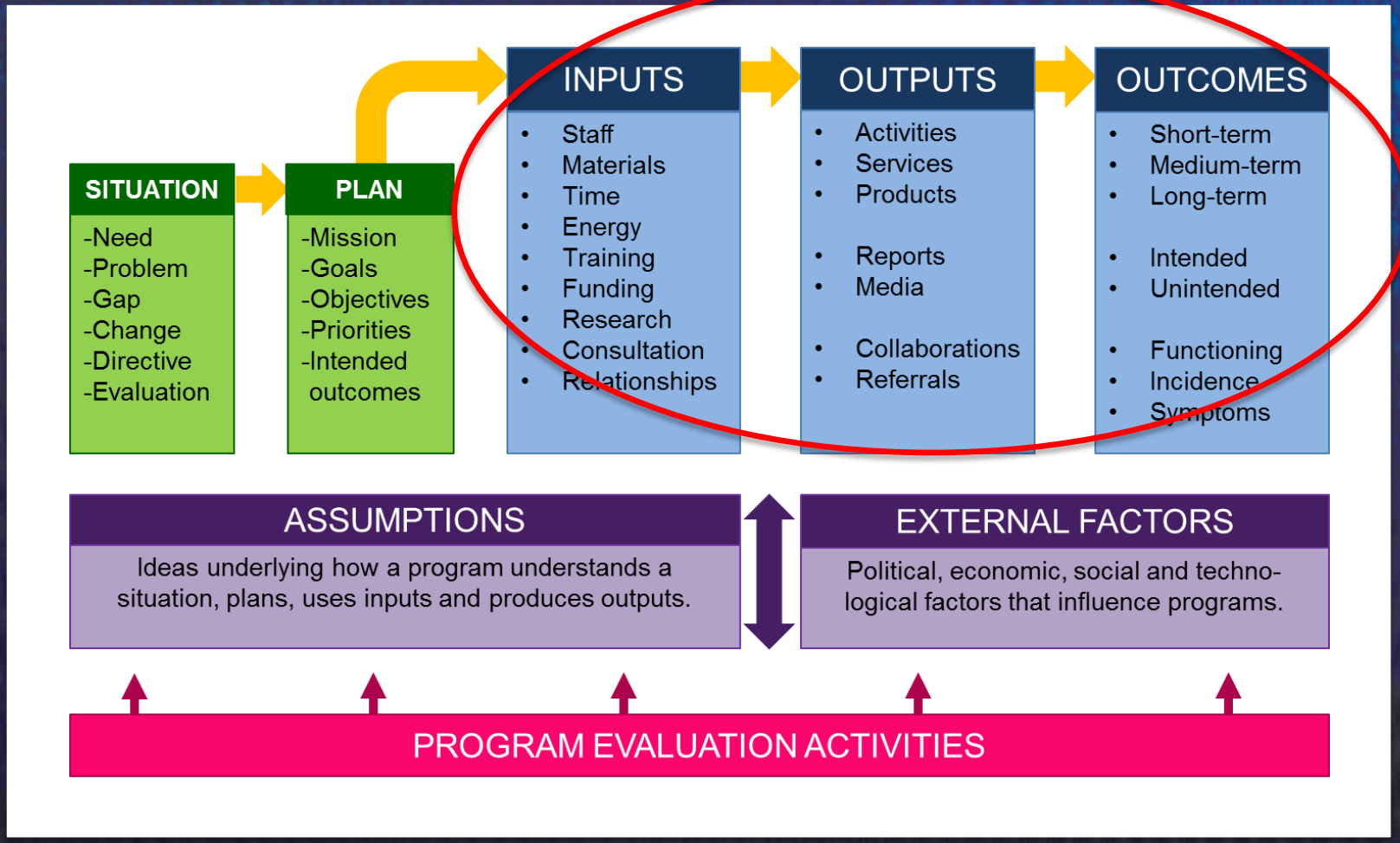
- In FY2014, **Program X** will provide up to 12 sessions of therapy to each of 500 active-duty service members who have been diagnosed with PTSD or referred by a medical or behavioral health professional for trauma-related concerns.

- **Program Y** will deliver two half-day, live web-based trainings per week to unit commanders, who will demonstrate increased awareness of TBI symptoms from pre- to post-training assessment.

Sample SMART Objectives (continued)

- **Program Z** will administer screening questionnaires to 100 percent of service members post-deployment using a depression screening checklist, and will refer individuals scoring 20 and above to behavioral health services at their service station or appropriate emergency care for individuals at imminent risk of harm to self or others.

Inputs, Outputs and Outcomes



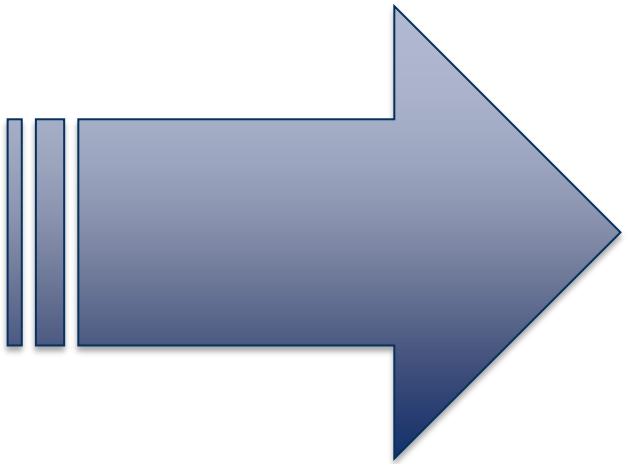
Inputs, Outputs and Outcomes in Existing Documents

- Inputs, outputs and outcomes may be documented in several locations, based on program needs and the type of information recorded and program requirements.
- Locations may include a Policy and Procedures Manual, Training Manual, Program Handbook, Reports to Stakeholders, Program Budgets, etc.

Construct a Logic Model: Forward Mapping

Identify Inputs, Outputs and Outcomes by:

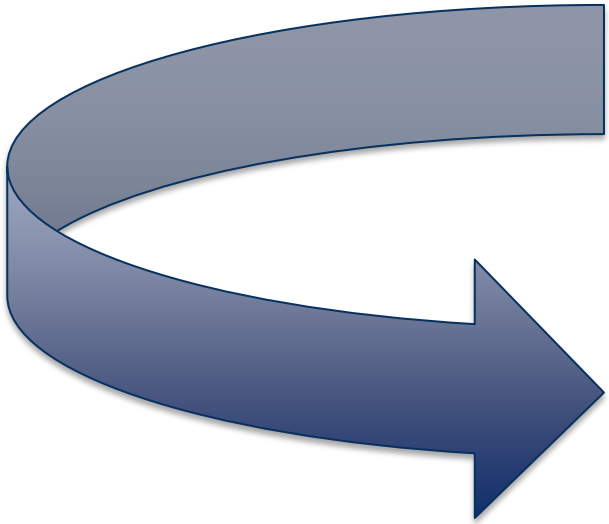
- Forward mapping—starting with program activities, ask "*so what?,*" in order to generate the outcomes that are expected to result.



Construct a Logic Model: Reverse Mapping

Identify Inputs, Outputs and Outcomes by:

- Reverse mapping—starting with program results, ask "*how?*," in order to generate the activities that produce them.



How Will People Know That Expected Changes Occurred?

Identify the evidence needed to demonstrate changes among participants. Does your measured outcome match your stated objective?

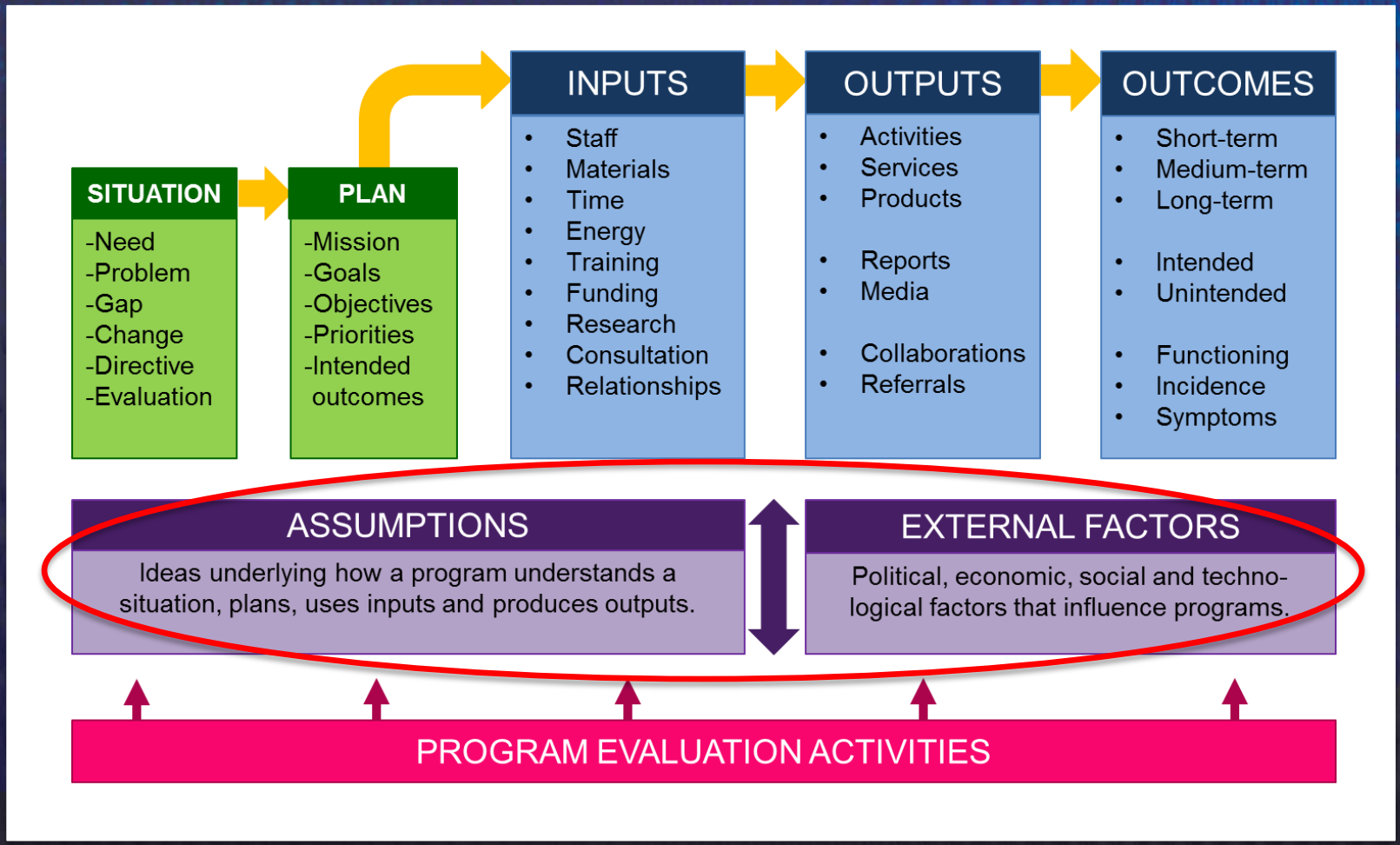
Objective:

- Unit commanders who take a suicide awareness class will demonstrate increased knowledge of suicide risk behaviors.

Measured Outcome:

- Unit commanders demonstrate a 20 percent increase in knowledge from baseline to post-test using a measure of suicide risk behavior awareness.

Assumptions and External Factors



Know Your Assumptions

Why do you believe your program will work:

- For the *target group(s)* for whom a need has been identified?
- With the *resources* available?
- With the *strategies* designed to meet this need?
- For the *outcomes* you want to achieve?
- In the *environment* in which your program exists?

Know Your Assumptions (continued)

Be aware of "causal" *relationships* between inputs, outputs and outcomes, which are often expressed as **"If/then"** statements.

- **If** resources are available, **then** program activities can be implemented.
- **If** program activities are implemented successfully, **then** certain outputs and outcomes can be expected.

Sample Logic Model Assumptions

Program Description:

A program seeks to reduce child abuse among families with a substance abusing service member by providing parent training classes and referring the service member to specialized substance abuse treatment.

Assumptions:

1. Children of service members who abuse substances are at high risk for child abuse
2. Parenting is a source of stress for service members
3. Parenting skills can be learned through skills training interventions
4. Specialized substance abuse treatment is effective

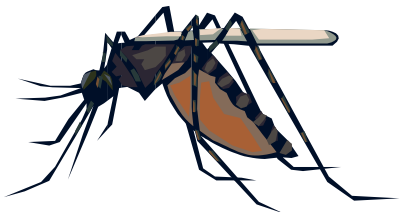
Consider External Factors

Given the same set of inputs, are the outputs and outcomes always the same?

or

Are there characteristics of the environment or participants that influence the effectiveness of the program?

Political / ***E***conomic / ***S***ocial / ***T***echnological



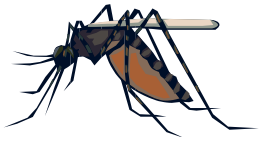
Sample External Factors

Region A provides free Internet access to reservists, whereas Region B does not have full coverage.

- In Region A, an online intervention would be easier to access.

There is greater stigma against seeking psychological health services in Service A versus Service B.

- Service A may need to tailor the way that programs are advertised or offered.



Tips for Creating Logic Models

Construct a Logic Model: Be Clear

Logic models should be easy to read and understandable to stakeholders who may not be familiar with your program.

Use active statements that make clear who performs an action and the effects of that action on an outcome:

Subject-verb-object

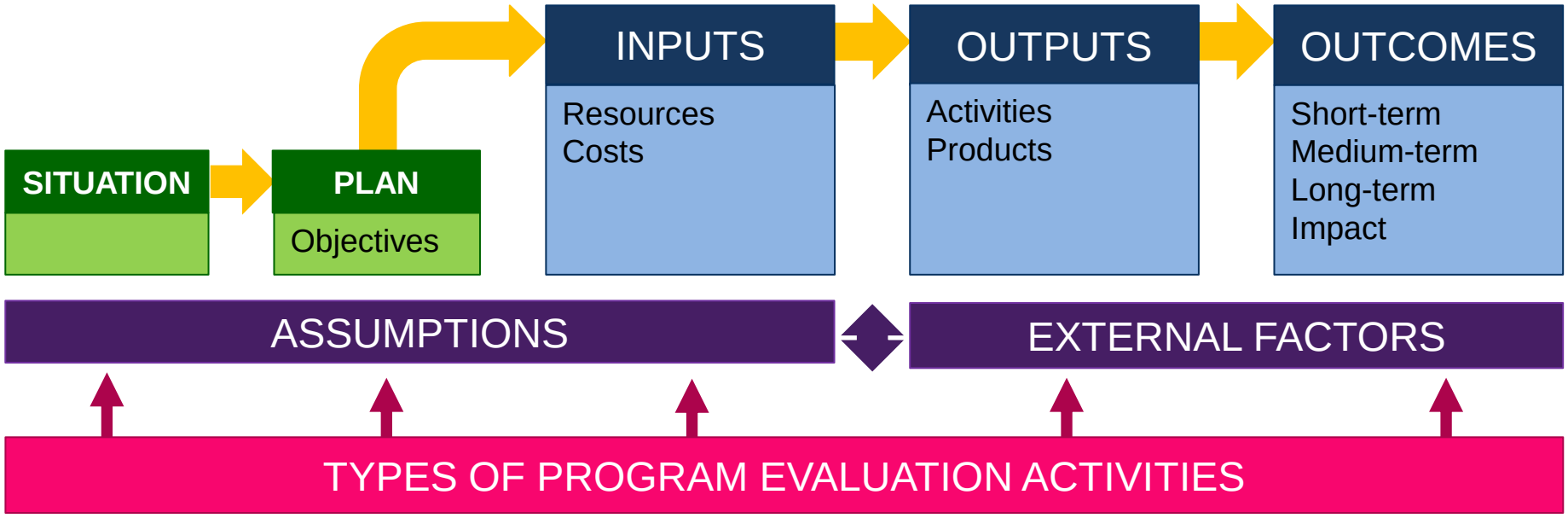
Word Choices for Program Outcomes

Timeframe	Type of Outcome
Short-term	Awareness of campaign, understanding of message, knowledge gained, opinion or attitude change, intentions or motivation to change
Medium-term	Increase in positive behaviors, use of coping skills, decreased symptoms, improved memory functioning, change in addiction or disorder status
Long-term	Increase in health practices, decrease in condition prevalence, improved job functioning, improved unit readiness, change in group norms, improved family relationship quality

Sentence Schematic for SMART Objectives

	Fill Options
By:	Date / # Weeks / # Sessions
Quantity:	How many / by what percent
Of the:	Service members / veterans / families
Will:	Increase / decrease / maintain / reduce / Improve / develop / ensure
What:	Ability to / skills to / knowledge of / likelihood of / incidence of [INSERT OUTCOME]
How:	As measured / indicated by [INSERT TOOL]

Logic Model and Program Evaluation Types



Process Evaluations

What is the need for the program?

What practices does the program use?

How does the program measure results?

Outcome Evaluations

Is the program achieving its stated objectives?

How long do benefits last?

Impact Evaluations & Cost Analyses

What is the benefit for the population?

How much does the program cost? How much does it save?

Do the benefits of a program justify its costs?

Common Challenges

Common Challenges

- How should my logic model be organized, and how detailed does it need to be?
- Who should be involved in developing the logic model?
- How many and what type of outcomes are appropriate?

Logic Model Organization and Detail

The Logic Model should be customized to reflect your program:

- There is no one best way to format, but cause-effect relationships should be made explicit.
- Arrows can go from:

  Activities → Activities or Products

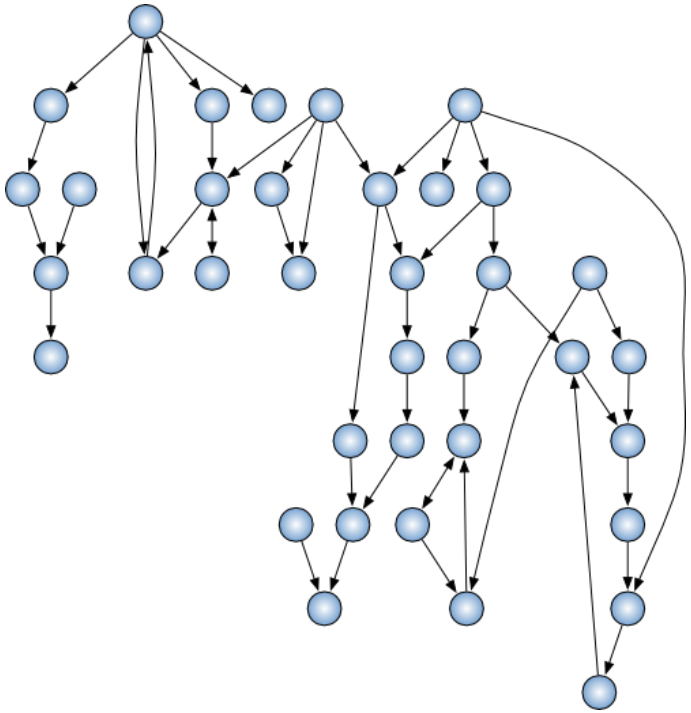
  Activities or Products → Outcomes

  Short-term Outcomes → Long-term Outcomes

Logic Model Organization and Detail (continued)

Strike a balance on detail: A logic model should contain enough information to be useful but not so much that it cannot be understood

Source: http://prezi.com/ecazolxt4_bk/primary-care-logic-model/



Source: http://eclipsemde.blogspot.com/

Choosing Who to Involve

A team approach is best when developing a logic model.

- Involve key personnel, such as program developers, providers and team leaders

Benefits of a team-oriented approach:

- Provides deeper understanding of the relationship between program activities and intended outcomes
- Strengthens team cohesion

How Many and What Type of Outcomes

Logic model developers should choose an appropriate number of outcome measures.

- Usually two to three per objective or outcome category
- Too many measures can burden data collection, analysis and reporting systems

The type of outcome measures should be:

- Closely related to objectives
- Of high quality (i.e., reliable and valid for the purpose and population)

Conclusion

Key Takeaways

- Logic Models illustrate a program's structured approach to ensure that the program aims, goals and activities support the mission.
- Logic models are an essential starting point for program evaluation and improvement efforts.
- "Research seeks to prove, evaluation seeks to improve."

  --M.Q. Patton

Photo by: Stewart Leiwakabessy

Source: M. Q. Patton, *2009, Qualitative Research and Evaluation Methods*

Resources

DCoE Program Evaluation Guide:
www.dcoe.mil/Content/Navigation/Documents/DCoE_Program_Evaluation_Guide.pdf

Centers for Disease Control and Prevention:
www.cdc.gov/healthyyouth/evaluation/resources.htm#4

University of Wisconsin-Extension: www.uwex.edu/ces/lmcourse

Minnesota Department of Health: www.health.state.mn.us/divs/opi/qi/toolbox/

W. K. Kellogg Foundation Logic Model Development Guide:
www.wkkf.org/resource-directory/resource/2006/02/wk-kellogg-foundation-logic-model-development-guide

Innovation Network: www.innonet.org